a6 Subc2 11. (Amended) Method ~~according to claim 7~~, wherein the exhaust gas is derived ~~from~~ diesel fuel containing at least 250ppm sulfur.

Please add the following new claim:

a7 Subc2 12. (Newly Added) ~~A method according to claim 7~~, wherein λ in the exhaust gases is ~~0.95~~ or richer.

Respectfully submitted,

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Enclosure: Version with Markings to Show Changes Made

Dated: March 11, 2002

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Kathleen Libby

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

At page 2, line 10:

According to one aspect, the invention provides a diesel (compression ignition) engine (which typically operate at approximately $\lambda = 3$, with a range of between 1.5 (high load) and 5 (low load/idle)) having combustion management means and an exhaust gas aftertreatment system without a NO_x trap, which system comprising a platinum group metal (PGM) catalyst liable to be poisoned by fuel sulfur to cause significant degradation of catalyst performance, which engine is fuelled, at least intermittently, by a diesel fuel containing such levels of sulfur as to cause poisoning of the catalyst, wherein the combustion management means is effective to modulate the air/fuel ratio (λ) to 0.90, preferably 0.95, or richer to provide a series of peak enrichments for a time which is in aggregate sufficient to cause release of significant quantities of sulfur-containing species from the catalyst or catalyst components, and wherein each regeneration is for 10 seconds to 10 minutes, whereby the catalyst is regenerated.

At page 3, line 5:

Modern diesel engine designs are tending towards so-called "common-rail" fuel injection systems. The use of these are particularly preferred in the present invention because of the ability to control quantity and timing of fuel injection. Accordingly, one method of operating the present invention is to incorporate, during the enriched operating conditions, such a quantity of fuel post combustion in the main power stroke, as to reach in the exhaust gases, ~~a~~ λ of 0.95 or richer. This may be achieved by generally known means. The post combustion enrichment may be in one or more of the cylinders, providing that the overall air/fuel ratio reaches 0.95 or richer. Of course, the quantity of air may be restricted as an alternative, or in addition, providing that driveability is not noticeably affected.

At page 6, line 4:

The catalyst in its stainless steel enclosure was then removed from the car and fitted to the exhaust system of a four-cylinder engine capable of operating slightly rich. It was coupled to a dynamometer mounted on a bench. The fuel used contained 250 ppm sulfur. The catalyst was exposed to exhaust gas corresponding to ~~a~~ $\underline{\lambda}$ = 0.95 for a total period of 5 minutes at a maximum of 500°C. The average temperature was 450°C. After this treatment the catalyst was refitted to the car and retested in the standard way, with the following results: 0.119 and 0.257 g/km for hydrocarbon and carbon monoxide respectively.

IN THE CLAIMS:

1. (Amended) A diesel (compression ignition) engine having combustion management means and an exhaust gas aftertreatment system without a NO_x trap, which system comprising a platinum group metal (PGM) catalyst liable to be poisoned by fuel sulfur to cause significant degradation of catalyst performance, which engine is fuelled, at least intermittently, by a fuel containing such levels of sulfur as to cause poisoning of the catalyst, wherein the combustion management means is effective to modulate the air/fuel ratio (λ) in pulses to 0.90~~, preferably 0.95,~~ or richer to provide a series of peak enrichments of from 250 milliseconds to 5 seconds in duration for ~~a~~ an aggregate time ~~which is in aggregate sufficient to cause release of significant quantities of sulfur-containing species from the catalyst or catalyst components, and wherein each regeneration is for~~ of from 10 seconds to 10 minutes, whereby the catalyst is regenerated.

2. (Amended) An engine according to claim 1, wherein the combustion management means is effective to ~~cause pulses of~~ modulate the air/fuel ratio ~~modulation of from 250 milliseconds to 5 seconds in duration within each regeneration event~~ pulses to 0.95 or richer.

3. (Amended) An engine according to claim 1 ~~or 2~~, wherein the catalyst is an oxidation catalyst.

4. (Amended) An engine according to claim 1, incorporating "common rail" fuel injection, programmed to provide in at least one cylinder,

such a quantity of fuel post combustion in the main power stroke, so as to reach, in the exhaust gases, ~~a~~ λ of 0.90 or richer.

5. (Amended) An engine according to claim 1, ~~2, 3 or 4,~~ wherein the catalyst is an oxidation catalyst and the exhaust gas aftertreatment system also includes a particle or soot filter downstream of the catalyst.

6. (Amended) An engine according to ~~any preceding~~ claim 1, wherein it is fuelled with diesel fuel containing at least 250ppm sulfur.

7. (Amended) A method of regenerating a PGM catalyst poisoned by sulfur in the exhaust gas aftertreatment system of an internal combustion engine, which system does not include a NO_x trap, which method comprising modulating the air/fuel ratio (λ) of the exhaust gases passing through the catalyst~~, to λ = 0.90, preferably 0.95,~~ in pulses to 0.90 or richer to provide a series of peak enrichments of from 250 milliseconds to 5 seconds in duration for ~~a~~ an aggregate time ~~which is in aggregate sufficient to cause release of significant quantities of sulfur-containing species from the catalyst or catalyst components, and wherein each regeneration is for~~ of from 10 seconds to 10 minutes, whereby the catalyst is regenerated.

9. (Amended) Method according to claim 7 ~~or 8~~, wherein the catalyst is in the temperature range 200-500°C, preferably 350-500°C, during regeneration.

Claim 10 has been canceled.

11. (Amended) Method according to claim 7~~, 8, 9 or 10~~, wherein the exhaust gas is derived from diesel fuel containing at least 250ppm sulfur.

Claim 12 has been added.